

REMARKS

Claims 1-60 were presented for examination, and claims 1-60 were rejected. In the current amendment, claims 1, 12, 13, 14, 16-22, 25, 30-31, 33-37, 48-50, and 52-58 have been amended. No new matter has been introduced. Upon entry of the current amendment, claims 1-60 will be presently pending in this application, of which claims 1, 13, 19, 25, 30, 35, 37, 49 and 55 are independent. Applicants submit that pending claims 1-60 are in condition for allowance.

The following comments address all stated grounds of rejection. The Applicants urge the Examiner to pass the claims to allowance in view of the remarks set forth below.

Claim Amendments

Claims 1, 12, 13, 14, 16-22, 25, 30-31, 33-37, 48-50, and 52-58 have been amended to clarify and more fully appreciate the Applicants' claimed invention. Support for the amended claims can be found on page 6, lines 1-9; page 8, lines 1-17; Figures 1, 4, 5, 7 and 8; and throughout the remainder of the specification. No new matter has been introduced. Applicants submit that the presently pending claims are in condition for allowance.

Claim Objections Under 37 C.F.R. §1.75(c)

The Examiner objects to claims 16, 33, and 52 as being of improper form under 37 C.F.R. §1.75(c) for failing to further limit the subject matter of the claim from which it depends. The Examiner indicates that claim 16 does not further limit claim 13, claim 33 does not further limit claim 30, and claim 52 does not further limit claim 49. Applicants respectfully traverse this objection.

The Examiner specifically indicates in the Office Action that claim 16 does not add any further limitation to claim 13 because claim 13 has to “access attributes to transform the accessed object.” Applicants respectfully disagree with the Examiner and contend that claim 16 further limits claim 13. Claim 13, as amended, recites the following step:

... transforming the accessed data object to a transformed data object implemented in the first programming language, wherein the transformed data object includes the attributes and attribute values of the class in the accessed data object; and ...

Claim 16, as amended, recites the following

The method of claim 13, further comprising:

providing a class schema, wherein the class schema includes information on one class and attributes of the class of the data object in the database, wherein transforming the accessed data object to the transformed data object further comprises, for the accessed data object, using information on the attributes in the class schema for the class of the accessed data object to transform the accessed data object to the transformed data object.

Claim 16 further limits claim 13 by reciting a limitation on how the step of claim 13 transforms the access data object to the transformed data object using information from the class schema.

That is, claim 13 recites a step of transforming an accessed data object into a transformed data object, and claim 16 recites a limitation on how the step of transforming may be performed using the class schema.

The method of claim 13 may perform in a plurality of ways the step of transforming an accessed data object to a transformed data object. Claim 16 indicates the additional limitation of using the class schema to access the attributes in performing the transforming step of claim 13. As such, Applicants contend that claim 16 further limits claim 13. Therefore, Applicants submit that claim 16 is in proper dependent form. Since claims 33 and 30, as amended, and claims 52 and 49, as amended, have a similar relationship, Applicants also contend that claim 33 further limits claim 30, and claim 52 further limits claim 49. Therefore, Applicants submit that claims 33 and 52 are in proper dependent form. Accordingly, Applicants respectfully request the

Examiner to reconsider and withdraw the objection to claims 16, 33 and 52 under 37 C.F.R §1.75(c).

Claim Rejections Under 35 U.S.C. §112, Second Paragraph

I. Claims 14, 15, 17, 18, 30, 31, 32, 34, 50, 51, 53 and 54 Rejected Under 35 U.S.C §112, second paragraph

The Examiner rejects claims 14, 15, 17, 18, 30, 31, 32, 34, 50, 51, 53, and 54 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regards as their invention. Applicants respectfully traverse this rejection.

A. Claims 14-15, 31-32 and 50-51

The Examiner indicates in the Office Action that claims 14-15, 31-32, and 50-51 are indefinite because the Examiner contends that the recited limitations “accomplish nothing.” Applicants respectfully point out to the Examiner that the Examiner’s focus during examination of claims for compliance with the requirements for 35 U.S.C. §112, second paragraph, is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity (see MPEP 2173.02). This requirement is not dependent on the subjective views of any particular individual but whether objectively the scope of the claim would be clear to one ordinarily skilled in the art. As such, the Examiner should not reject claims under 35 U.S.C. §112, second paragraph, based on the Examiner’s subjective view of a result that may be accomplished by performing the steps recited in the claim.

Furthermore, Applicants contend that one ordinarily skilled in the art can ascertain with a reasonable degree of clarity and particularity the subject matter recited in claims 14-15, 31-32, and 50-51. Each of claims 14, 31, and 50 recite and accomplish the steps of using a GET interface in the second programming language to access the attribute values in the accessed data object, and using a SET interface in the first programming language to add each accessed attribute value from the accessed data object to a transformed data object. Each of claims 15, 32 and 51 recite and accomplish the steps of receiving a request for at least one data object in the database from a second application that processes data objects in the second programming language, accessing each requested data object from the database, and returning each data object accessed from the database in response to the request from the second application. The language of these claims has a distinct meaning and scope such that one ordinarily skilled in the art would reasonably and clearly understand these claim limitations as recited. As such, claims 14-15, 31-32, and 50-51 particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

For at least the aforementioned reasons, Applicants submit that claims 14-15, 31-32, and 50-51 comply with the requirements for 35 U.S.C. §112, second paragraph. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw the rejection to claims 14-15, 31-32, and 50-51 under 35 U.S.C. §112, second paragraph.

B. Claims 17 and 53

The Examiner indicates in the Office Action that claims 17 and 53 are indefinite because it is not clear if the claim limitation related to lengths of all the attributes applies to the size of the transformed data object or the length of each attribute. Applicants respectfully disagree with the

Examiner's assertion that the claim is indefinite with respect to length as recited in these claims. Nevertheless, Applicants amend claims 17 and 53 to clarify the scope of the Applicants' claimed invention.

In light of the aforementioned amendment, claims 17 and 53 particularly point out and distinctly claims the subject matter to which the Applicants regard as their invention. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 17 and 53 under 35 U.S.C. §112, second paragraph.

C. Claims 18, 34 and 54

The Examiner indicates in the Office Action that claims 18, 34 and 54 are indefinite because "nothing is done" when the request is related to the first programming language and if the transformation is from the third programming language to the third programming language. As discussed above with respect to claims 14-15, 31-32, and 50-51, the Examiner needs to determine under the requirements of 35 U.S.C. §112, second paragraph whether objectively the scope of the claim would be clear to one ordinarily skilled in the art. As such, the Examiner should not reject these claims under 35 U.S.C. §112, second paragraph, based on the Examiner's subjective view of a result that may be accomplished by performing the steps recited in the claim. Additionally, Applicants respectfully point out to the Examiner that the Applicants need not explicitly recite in a dependent claim every limitation to performing the steps of the claimed invention.

Nevertheless, Applicants disagree with the Examiner and contend that claims 18, 34, and 54 recite limitations for performing steps when a request is related to either the first programming language or the third programming language. With respect to a request related to the first programming language, claims 18, 34 and 54, as amended, recite the step of

transforming the accessed data object to the transformed data object implemented in the first programming language if the application requesting the data object processes data objects in the first programming language. With respect to a request related to the third programming language, claims 18, 34 and 54, as amended, recite the step of transforming the accessed data objects to the transformed data object implemented in the third programming language if the application requesting the data object processes data objects in the third programming language. That is, the claimed invention transforms the accessed data object implemented in a second programming language to the language used by the application requesting the data object. The language of these claims has a distinct meaning and scope such that one ordinarily skilled in the art would reasonably and clearly understand these claim limitations as recited. As such, claims 18, 34, and 54 particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

For at least the aforementioned reasons, Applicants submit that claims 18, 34, and 54 comply with the requirements for 35 U.S.C. §112, second paragraph. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw the rejection to claims 18, 34 and 54 under 35 U.S.C. §112, second paragraph.

D. Claim 30

The Examiner indicates in the Office Action that claim 30 is indefinite because the computer implementation is only for the second programming language and no means is recited for processing data objects in a first programming language. As discussed above, the Examiner needs to determine under the requirements of 35 U.S.C. §112, second paragraph whether objectively the scope of the claim would be clear to one ordinarily skilled in the art.

Additionally, the Applicants need not explicitly recite in a dependent claim every limitation to performing the steps of the claimed invention.

Nevertheless, Applicants contend that claim 30 recites claims limitations for processing data objects in a first programming language. Claim 30 recites a system for managing database requests from an application that processes data objects in a first programming language. Claim 30 further recites a means for receiving a request from the application for a data object implemented in a second programming language, accessing the requested data object, transforming the accessed data object to a transformed data object implemented in the first programming language, and returning the transformed data object implemented in the first programming language to the application. That is, the application processes data objects in the first programming language. One ordinarily skilled in the art would reasonably and clearly understand the limitations of claim 30 as recited. Therefore, claim 30 particularly points out and distinctly claims the subject matter which the Applicants regard as their invention.

For at least the aforementioned reasons, Applicants submit that claim 30 complies with the requirements for 35 U.S.C. §112, second paragraph. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw the rejection to claim 30 under 35 U.S.C. §112, second paragraph.

Claim Rejections Under 35 U.S.C. §101

II. Claims 1-60 Stand Rejected Under 35 U.S.C §101

Claims 1-60 are rejected under 35 U.S.C. §101 because the claimed invention is directed towards non-statutory subject matter. Applicants traverse this rejection.

A. Claims 1-24 and 37-60

The Examiner rejects claims 1-24 and claims 37-60 under 35 U.S.C. §101 because the language of the claim raises a question as to whether the claimed invention is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would produce a concrete, useful and tangible result to form the basis of statutory subject matter under 35 U.S.C. §101. Specifically, the Examiner contends that these claims may be practiced with pencil and paper, and thereby suggests the claimed invention is not tied to a technological art to produce a concrete, useful, and tangible result. Applicants respectfully disagree with the Examiner and submit that claims 1-24 and 37-60, as amended, are directed towards a method performed in an electronic device which has a practical application in the technological arts.

Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. 101. One ordinarily skilled in the art would recognize that independent claims 1, 13, 19, 37, 49, and 55 are directed towards at least a computer related process. These claims recite a data object implemented in a programming language that is stored and retrieved from a database that stores data objects. As such, one ordinarily skilled in the art would recognize that data objects implemented in a programming language and stored in a database are practiced in the computer related arts. Nevertheless, Applicants amends claims 1, 13, 19, 37, 49 and 55 to clarify that the methods of the Applicants' claimed invention are performed in an electronic device. As such, claims 1-24 and 37-60 are tied to a technological art to produce a concrete, useful and tangible result.

In light of the present amendment and for at least the aforementioned reasons, Applicants submit that claims 1-24 and 37-60 recite statutory subject matter. Therefore, Applicants

respectfully request the Examiner to reconsider and withdraw the rejection of claims 1-24 and 37-60 under 35 U.S.C. §101.

B. Claims 1-60

The Examiner rejects claims 1-60 under 35 U.S.C. §101 because the acts of the claimed invention consist solely of mathematical operations and do not manipulate appropriate subject matter and thus cannot constitute a statutory process. The Examiner further indicates in the Office Action that the claims as stated appear to manipulate only numbers, abstract concepts or ideas and are not applied to appropriate subject matter even assuming all the claims are computer implemented. Applicants respectfully disagree with the Examiner and submit the Examiner has not established a *prima facie* case that the claimed invention is directed to an abstract idea or to the manipulation of an abstract idea or does not produce a concrete, useful and tangible result.

The Examiner has the burden to establish a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to the manipulation of an abstract idea or does not produce a useful result. The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. 101. Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. *See* MPEP §2106. In accordance with MPEP §2106, the Examiner should consider the entire disclosure of the application to determine if the claimed invention accomplishes at least one asserted practical application. Applicants respectfully direct the Examiner's attention to page 11, lines 1-5 of the present application, which states the following:

Thus, with the described implementations, a database interface 24 component transforms non-Java data objects into Java data objects for storage in a Java OOD 10, so that a single Java OOD 10 can be used to store data objects from different application programs 12, 18 implemented in different application programming languages, e.g., Java, C, C++, Smalltalk, etc.

As stated in the specification, at least one practical application of the claimed invention is to provide for storing non-Java data objects implemented in a non-Java programming language to a Java object-oriented database that stores Java data objects implemented in the Java programming language.

A claimed invention is limited to a practical application when the claimed invention produces a concrete, tangible and useful result. See *AT&T*, 172 F.3d at 1358, 50 USPQ2d at 1452. The claimed invention of this application is directed towards methods, systems, and apparatus that maintain data objects from different applications in an object database implemented in a programming language that may be different than the application. One ordinarily skilled in the art would recognize this as a concrete, useful, and tangible result. Accordingly, the claimed invention is not directed to either an abstract idea or a mathematical algorithm, but is directed towards a practical application of maintaining data objects.

Furthermore, when the Examiner makes a rejection under 35 U.S.C. §101, the Examiner must expressly state how the language of the claims has been interpreted to support the rejection. The Examiner broadly rejects all of the claims as non-statutory and only generally indicates that the acts of the claimed invention as stated appear to manipulate only numbers, abstract concepts or ideas. Therefore, Applicants submit the Examiner has not expressly stated how the language of the claims has been interpreted to support the Examiner's rejection.

For at least the aforementioned reasons, the Examiner has not established a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to the

manipulation of an abstract idea or does not produce a useful result. Furthermore, Applicants submit that claims 1-60 recite statutory subject matter. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 1-60 under 35 U.S.C. §101.

Claim Rejections Under 35 U.S.C. §102

III. Claims 1-60 Rejected Under 35 U.S.C §102 As Being Anticipated By Fong

Claims 1-60 are rejected under 35 U.S.C. §102 as being anticipated by Fong et al. (U.S. Patent No. 6,085,196) (“Fong 96”), which incorporates by reference U.S. Patent No. 6,009,436 (“Fong 36”) and U.S. Patent No. 6,678,867 (“Fong 67”) (collectively referred to as “Fong”). Applicants respectfully traverse this rejection.

A. Summary of Claimed Invention

The claimed invention is directed towards methods, systems and apparatus, respectively, related to storing and retrieving data objects from a database. In one aspect, the claimed invention is directed towards maintaining a database of objects. The claimed invention receives a request to store a first data object to a database that stores data objects implemented in a second programming language. The first data object is implemented in a first programming language and includes attributes and attribute values for a class. The first data object is transformed into a second data object implemented in the second programming language. The second data object includes the attributes and attribute values of the class of the first data object. The claimed invention, in response to the request, stores the second data object in the database.

In another aspect, the claimed invention is directed towards returning data objects from a database to an application that processes data objects in a first programming language. The claimed invention receives a request from the application for a data object in the database that stores the data object in a second programming language. The requested data object is accessed from the database and transformed into a transformed data object implemented in the first programming language of the application. The transformed data object includes the attributes and attribute values of the class of the access of the accessed data object. In response to the request, the transformed data object is returned to the application.

The claimed invention provides for maintaining data objects implemented in different programming languages from different applications to be maintained in an object database that may store data objects implemented in a programming language different than the data objects or different from the programming language of the application. This allows an object database to support multiple applications and multiple programming languages although the database may store data objects in a programming language different than any of the applications.

B. Summary of Fong

Fong is directed towards a system for mapping a document in a format of a first markup language to a format of a second markup language using a mapping that can be interactively defined by a user through a graphical user interface. A document is a text-based file including text based characters in a markup language, such as HTML or SMGL. The document also may comprise other text based formats such as UNIX or DOS file name schemes. A markup language is a set of codes in a text file that indicate to a computer how to format non-code text, graphics or other types of files (see column 1, line 66 to column 2, line 2, Fong 67). The system

of Fong uses a mapping to convert a document in a first markup language, such as a SMGL, to a second markup language such as HTML. Mapping involves the transformation of strings in one allowable character set to strings of another allowable character set (see column 28, lines 10-12, Fong 96). The conversion system provides a graphical user interface to allow a user to customize the mapping to convert the document from one character set to the other character set. With the graphical user interface, the user can specify what elements of the character set of the first format should be mapped to elements of the character set of the second format. In summary, Fong provides a document processing system to convert a document from one format to another but allowing the user to interactively define the conversion mapping (see column 3, lines 20-22, Fong 96).

C. Amended Independent Claims 1, 25, and 37 Patentably Distinguished Over Fong

Amended independent claims 1, 25, and 37 are directed to a method, system and apparatus, respectively. These independent claims recite *receiving a request to store in a database capable of storing data objects in a second programming language a first data object implemented in a first programming language* including attributes and attribute values for a class. The first data object is transformed to a second data object implemented in a second programming language. The second data object includes the attributes and attribute values of the class of the first data set. In response to the request, the second data object is stored in the database in the second programming language.

Fong does not disclose *receiving a request to store in a database capable of storing data objects in a second programming language a first data object implemented in a first programming language*. The claimed invention receives a request to store a first data object

implemented a first programming language in a database that stores data objects implemented a second programming language. The claimed invention transforms the first data object into a second data object that represents the class and class attributes of the first data object but in the second programming language, and stores the second data object in the database. In contrast, Fong describes a graphical user interface for creating user-defined mapping to convert a document in a first markup language to a document in a second markup language. As such, Fong is not concerned with storing a data object implemented in one programming language to a database that stores data objects in another programming language. Instead, Fong is focused on converting text-based documents from one text-based format to another text-based format. Furthermore, Fong does not discuss databases capable of storing data objects and storing data objects in such databases. Therefore, Fong does not disclose *receiving a request to store a first data object implemented in a first programming language in a database that stores data objects implemented a second programming language.*

For the aforementioned reasons, Fong fails to disclose *receiving a request to store in a database capable of storing data objects in a second programming language a first data object implemented in a first programming language.* Therefore, Applicants submit that claims 1, 25 and 37 are patentable and in condition for allowance. Claims 2-12 depend on and incorporate the patentable subject matter of independent claim 1, as amended. Claim 26-29 depend on and incorporate the patentable subject matter of independent claim 25, as amended. Claim 38-48 depend on and incorporate the patentable subject matter of independent claim 37, as amended. As such, claims 2-12, 26-29, and 38-48 are patentable and in condition for allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 1-12, 25-29 and 37-48 under 35 U.S.C. §102.

D. Amended Independent Claims 13, 30 and 49 Patentably Distinguished over Fong

Amended independent claims 13, 30, and 49 are directed towards a method, system and apparatus, respectively. These independent claims recite *receiving a request from an application that processes data objects in a first programming language a data object in a database storing the data object in a second programming language*. The data object is accessed and the accessed data object is transformed into a transformed data object implemented in a second programming language. The transformed data object includes an attributes and attribute value of the class in the accessed data object. In response to the request, the transformed data object is returned to the application.

Fong does not disclose *receiving from an application that processes data objects in a first programming language a request for a data object in a database storing the data object in a second programming language*. Rather, Fong describes creating a user-defined mapping to convert a text-based document in a first markup language to a text-based document in a second markup language. As such, Fong is not concerned with receiving a request from an application to obtain a data object from a database storing data objects in a programming language different than the programming language that the application processes the data objects. Instead, Fong describes converting text-based documents from one text-based format to another text-based format. Furthermore, Fong does not discuss databases capable of storing data objects and retrieving data objects from such databases. Therefore, Fong does not disclose *receiving from an application that processes data objects in a first programming language a request for a data object in a database storing the data object in a second programming language*.

For the aforementioned reasons, Fong fails to disclose *receiving from an application that processes data objects in a first programming language a request for a data object in a database storing the data object in a second programming language*. Therefore, Applicants submit that amended claims 13, 30, and 49 are patentable and in condition for allowance. Claims 14-18 depend on and incorporate the patentable subject matter of independent claim 13, as amended. Claims 31-34 depend on and incorporate the patentable subject matter of independent claim 30, as amended. Claims 50-54 depend on and incorporate the patentable subject matter of independent claim 49, as amended. As such, claims 14-18, 31-34, and 50-54 are patentable and in condition for allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 13-18, 30-34, and 50-54 under 35 U.S.C. §102.

E. Amended Independent Claims 19, 35 and 55 Patentably Distinguished over Fong
Amended independent claims 19, 35, and 55 are directed are towards a method, system and apparatus, respectively. These independent claims recite receiving a definition of a class and attributes in the class of a first data object implemented in a first programming language, generating a file, and adding information to the file to provide a class schema representing the class and each attribute in the class. That is, the claimed invention *generates a file to provide a class schema representing the class and each attribute of the class of a first data object*.

Fong does not disclose *generating a file to provide a class schema representing the class and each attribute of the class of a first data object*. As discussed above, Fong describes mapping strings of one character set of a document to strings of another character set. Fong does not describe generating a file and adding to the file class schema information. Instead, Fong describes changing the text-based format of an existing document. Furthermore, Fong is not

concerned with *providing a class schema to represent the class of a first data object*. Rather, Fong is concerned with a providing a document converted to a format specified by a user-defined mapping. Therefore, Fong does not disclose *generating a file to provide a class schema representing the class and each attribute of the class of a first data object*.

For the aforementioned reasons, Fong fails to disclose *generating a file to provide a class schema representing the class and each attribute of the class of a first data object*. Therefore, Applicants submit that amended claims 19, 35 and 55 are patentable and in condition for allowance. Claims 20-24 depend on and incorporate the patentable subject matter of independent claim 19, as amended. Claim 36 depends on and incorporates the patentable subject matter of independent claim 35, as amended. Claims 56-60 depend on and incorporate the patentable subject matter of independent claim 55, as amended. As such, claims 20-24, 36, and 56-60 are patentable and in condition for allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 19-24, 35-36, and 55-60 under 35 U.S.C. §102.

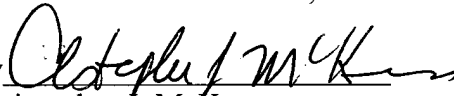
Conclusion

In light of the present amendments and aforementioned arguments, Applicants contend that each of the Examiners rejections has been adequately addressed and the pending application is in condition for allowance.

Should the Examiner feel that a telephone conference with Applicants' attorney would expedite prosecution of this application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

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